WHAT IS CLAIMED IS:

1   1.   A method comprising:

2   receiving a request to read a portion of data from first data storage, wherein

3   a first host can access the first data storage, and

4   the first host cannot access second data storage;

5   requesting a requested portion of a copy of the data in the second data storage from a second

6   host that can access the second data storage;

7   receiving the requested portion from the second host; and

8   reading the portion of the data by

9   reading the requested portion received from the second host, and

10   if a sub-portion of the portion of the data is available from the first data storage and

11   the sub-portion was not included in the requested portion,

12   reading the sub-portion from the first data storage.

1   2.   The method of claim 1 further comprising:

2   determining that a second portion of the data in the first data storage is unavailable;

3   creating a third data storage upon performing the determining, wherein

4   the first host can access the third data storage; and

5   causing each subsequent change to the data in the first data storage to be written to the third

6   data storage.

1   3.   The method of claim 2 wherein

2   if the portion of the data comprises an updated portion in the third data storage,

3   the reading the portion of the data comprises

4   reading the updated portion from the third data storage.

1   4.   The method of claim 2 wherein

2   the second portion of the data is unavailable because the second portion of the data is

3   corrupted.

1   5.   The method of claim 2 wherein

2   the second portion of the data is unavailable because a device of the first data storage is

3   unavailable.

1   6.   The method of claim 2 further comprising:

2   replicating data in the third data storage to fourth data storage accessible by the second host,

3   wherein the fourth data storage cannot be accessed by the first host.

1   7.   The method of claim 1 wherein

2   the copy of the data in the second data storage was copied from a previous version of the data

3   in the first data storage at a previous point in time.

1   8.   The method of claim 1 wherein

2   the data in the second data storage is a log of changes made to data in the first data storage

3   after a previous point in time; and

4   the requested portion is a set of changes in the log of changes, wherein

5   each change in the set of changes comprises

6   a change to the portion of the data, wherein

7   the change was made after the previous point in time.

1   9.   The method of claim 1 wherein

2   the requesting the requested portion comprises:

3   identifying a set of changed regions of a first plurality of regions of the first data

4   storage using a set of indicators, wherein

5   each indicator of the set indicates whether at least one change was made to

6   data in a respective region of the first data storage, and;

7   adding each region of the set of changed regions to the requested portion.

1   10.   The method of claim 9 further comprising:

2   determining whether the data in each region of the first plurality of regions of the first data

3   storage is synchronized with the copy of the data in a corresponding region of a

4   second plurality of regions of the second data storage;

5   and

6   if the data in one region of the first plurality of regions is not synchronized with the

7   copy of the data in the corresponding region of the second plurality of regions,

8   identifying a set of unsynchronized regions of the first data storage, wherein

9   each region in the set of unsynchronized regions is unsynchronized with a

10   corresponding region of the second data storage,

11   and

12   forcing replication of the data in the set of unsynchronized regions to the copy of the

13   data in the second data storage prior to requesting the requested portion.

1   11.   The method of claim 10 wherein

2   the determining whether the data in each region of the first data storage is synchronized with

3   the copy of the data in the corresponding region of the second data storage comprises

4   determining whether a lag in replication from the first data storage to the second data

5   storage exists, and

6   if the lag exists, determining that the first data storage and the second data storage are

7   unsynchronized.

1   12.   The method of claim 11 wherein

2   the determining whether the lag in replication from the first data storage to the second data

3   storage exists comprises:

4   examining a replication map for the first data storage, wherein

5   the replication map comprises an indicator for each region of the first plurality

6   of regions,

7   the indicator for each region indicates whether data in a respective region of

8   the first data storage have changed but have not yet been replicated;

9   and

10   if at least one respective region of the first plurality of regions has the indicator,

11   determining that the lag exists.

1   13.   A system comprising: ⟋

2   first receiving means for receiving a request to read a portion of data from first data storage,

3   wherein

4   a first host can access the first data storage, and

5   the first host cannot access second data storage;

6   requesting means for requesting a requested portion of a copy of the data in the second data

7   storage from a second host that can access the second data storage;

8   second receiving means for receiving the requested portion from the second host; and

9   reading means for reading the portion of the data by

10   reading the requested portion received from the second host, and

11   if a sub-portion of the portion of the data is available from the first data storage and

12   the sub-portion was not included in the requested portion,

13   reading the sub-portion from the first data storage.

1   14.   The system of claim 13 further comprising:

2   determining means for determining that a second portion of the data in the first data storage is

3   unavailable;

4   creating means for creating a third data storage upon performing the determining, wherein

5   the first host can access the third data storage; and

6   causing means for causing each subsequent change to the data in the first data storage to be

7   written to the third data storage.

1   15.   The system of claim 14 further comprising:

2   second reading means for reading an updated portion from the third data storage if the portion

3   of the data comprises the updated portion.

1   16.   A system comprising:

2   a first receiving module to receive a request to read a portion of data from first data storage,

3   wherein

4   a first host can access the first data storage, and

5   the first host cannot access second data storage;

6   a requesting module to request a requested portion of a copy of the data in the second data

7   storage from a second host that can access the second data storage;

8   a second receiving module to receive the requested portion from the second host; and

9   a reading module to read the portion of the data by

10   reading the requested portion received from the second host, and

11   if a sub-portion of the portion of the data is available from the first data storage and

12   the sub-portion was not included in the requested portion,

13   reading the sub-portion from the first data storage.

1   17.   The system of claim 16 further comprising:

2   a determining module to determine that a second portion of the data in the first data storage is

3   unavailable;

4   a creating module to create a third data storage upon performing the determining, wherein

5   the first host can access the third data storage; and

6   a causing module to cause each subsequent change to the data in the first data storage to be

7   written to the third data storage.

1   18.   The system of claim 17 further comprising:

2   a second reading module to read an updated portion from the third data storage if the portion

3   of the data comprises the updated portion.

1   19.   A computer-readable medium comprising:

2   first receiving instructions to receive a request to read a portion of data from first data

3   storage, wherein

4   a first host can access the first data storage, and

5   the first host cannot access second data storage;

6   requesting instructions to request a requested portion of a copy of the data in the second data

7   storage from a second host that can access the second data storage;

8   second receiving instructions to receive the requested portion from the second host; and

9   reading instructions to read the portion of the data by

10   reading the requested portion received from the second host, and

11   if a sub-portion of the portion of the data is available from the first data storage and

12   the sub-portion was not included in the requested portion,

13   reading the sub-portion from the first data storage.

1   20.   The computer-readable medium of claim 1 further comprising:

2   determining instructions to determine that a second portion of the data in the first data storage

3   is unavailable;

4   creating instructions to create a third data storage upon performing the determining, wherein

5   the first host can access the third data storage; and

6   causing instructions to cause each subsequent change to the data in the first data storage to be

7   written to the third data storage.

1   21.   The computer-readable medium of claim 20 further comprising:

2   second reading instructions to read an updated portion from the third data storage if the

3   portion of the data comprises the updated portion.